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ABSTRACT

An art activity introduces intermediate grade and middle school students to optical illusions. Students practice drawing geometric shapes such as cubes, cylinders, cones, and pyramids, then combine these shapes to create the illusion of their choice. Graphic outlines for each shape are provided. This document is one of a collection of materials from the Iowa Area Education Agency 7 Teacher Center project. (LP)

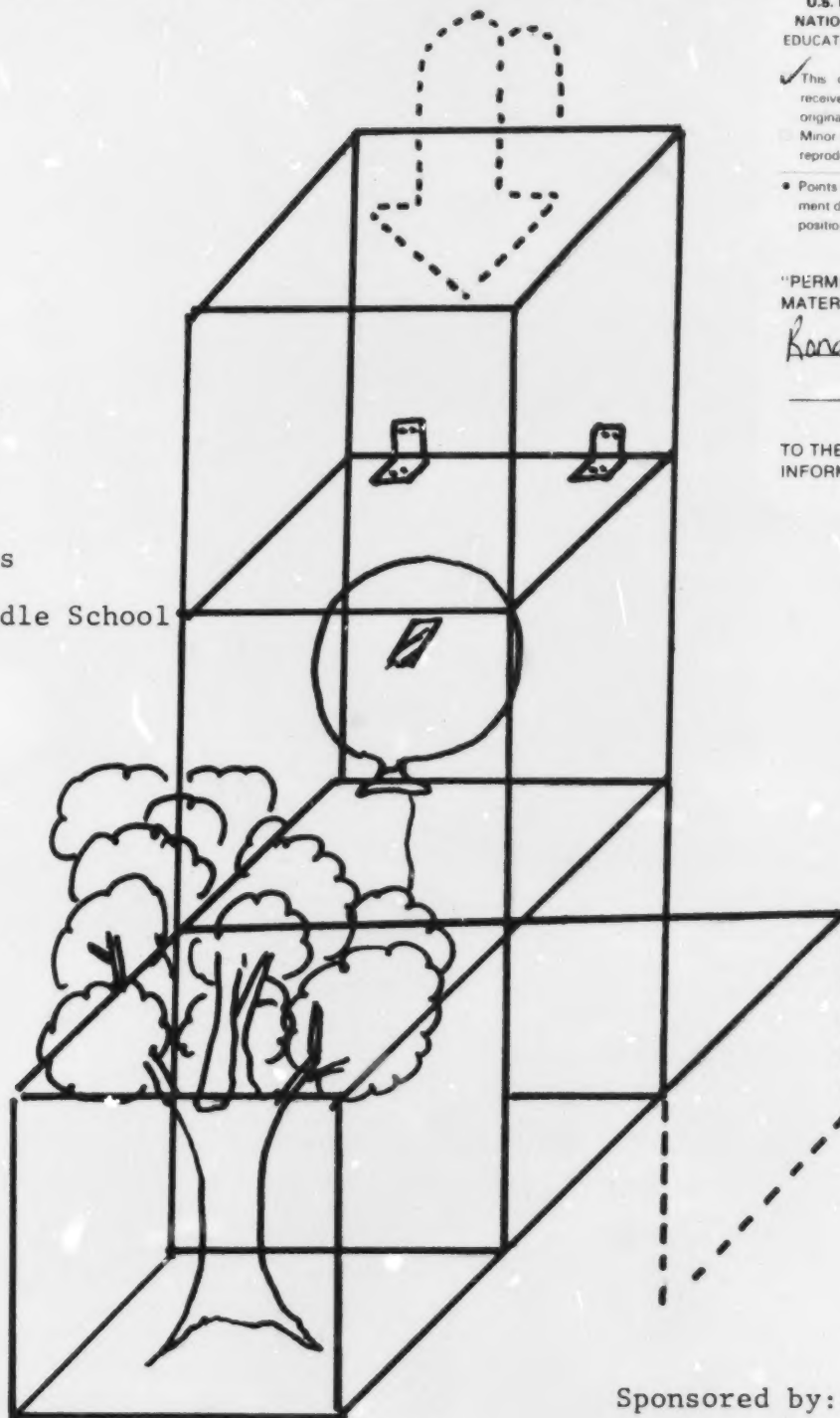
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ILLUSIONS

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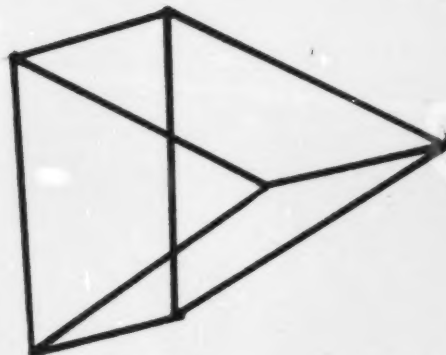
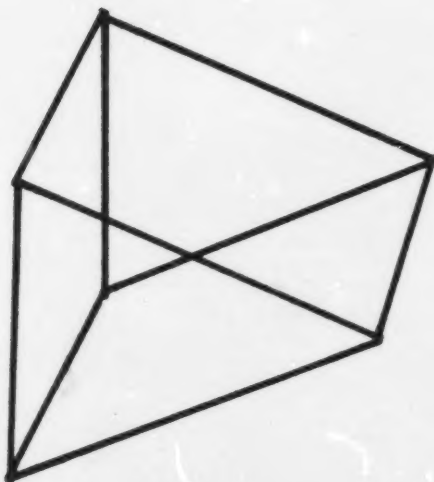
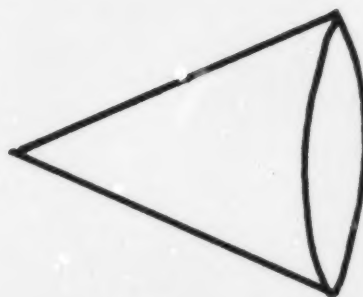
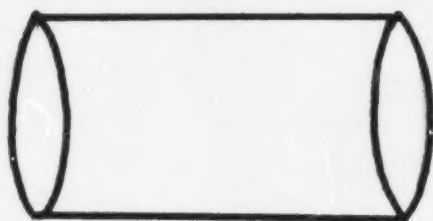
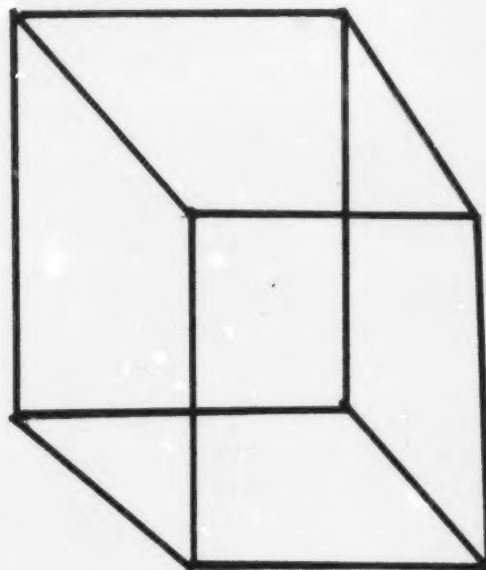
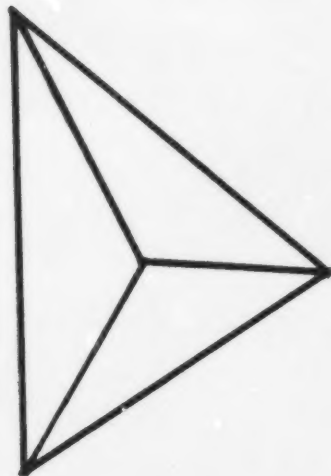
Author(s): Ken Osterhaus

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Sept. 15, 1978 to Aug. 15, 1983

Teacher Center Policy Board Chair - Doris Mauer
Teacher Center Director - Diane Gibson, Ed. D.

Ronald Dickinson, Ed. D.- Chief Administrator, AEA 7



MATERIALS NEEDED: White and black paper, 9 x 12/12 x 18, straight edges, pencils, magic markers (thin line), fluorescent paint, small brushes.

To draw optical illusions in space, the student needs an understanding of how to construct the basic illusion shapes: the cube, cylinder, cone, pyramid, and variations of the pup-tent. Other illusion shapes could be created at the students' experimentation.

The cube is successfully drawn by first drawing a square (Fig. 1), then beginning at the center of the first square drawing another square, radiating from that center (Fig. 2).

Connecting the correct corners can be difficult for some students. It is helpful to remind them that the top right-hand corners of each square are connected with a straight edge, then bottom right corners, etc. (Fig. 3).

When drawing cylinders and cones, emphasize that the angle on the cone and the parallel lines of the cylinder should be drawn first (Fig. 4). Next, the inside and outside curves are inserted between the points. These curves should connect at the end to form almost a point, as opposed to forming a circle (Fig 5 & 6).

Other illusion shapes needing to be mastered are the pyramid (Fig. 7 & 8) and the pup-tent (Fig. 9 & 10). After these shapes have been drawn, the student may then begin to draw his own optical illusion designs. If the student's design will be finished with fine point markers, he should pencil-draw his design on white paper. The student should pencil-draw on black paper if the illusion will be finished in fluorescent paint.

To create the illusion of two optical shapes melting together, an important rule must be followed: Any shape that is "melted-on" to an already existing shape must use a common line from that first shape (Fig. 11). Note that the entire line is shared in common, thus confusing the viewer as to where one begins and the other ends.

This same design may be "melted-on" over and over as the illusion grows larger (Fig. 12). Or a variety of design shapes can be "melted-on" as illustrated in Fig. 13.

Before the designs are painted or accented with markers, some discussion of different types of lines might spark creativity (as dotted, arrowed, cross-hatch, straight, or dashed). An addition of some fantasy might also enhance floating shapes, hinges, things popping out or falling into the illusions of space (Fig. on cover sheet).

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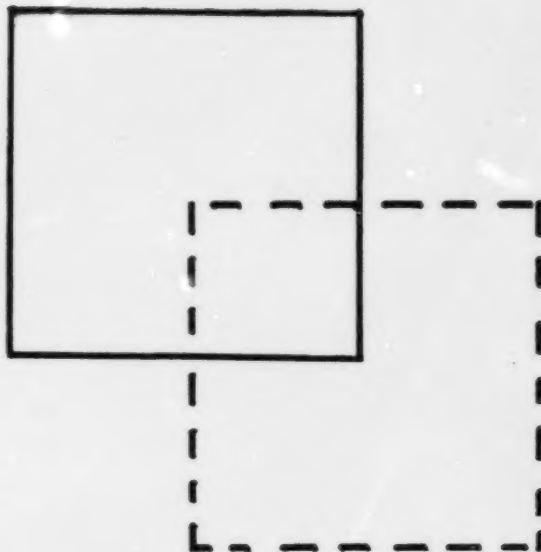
TEST (of teacher effectiveness on Optical Illusion presentation)

- Have students take a plain sheet of paper, pencil, and straight edge.
- Direct students to draw a cubical box as if made of glass, a pyramid, a cylinder, and a cone.
- Then have the students combine these four shapes, by drawing, to form an optical illusion of his choice, following the rules in the project lesson.

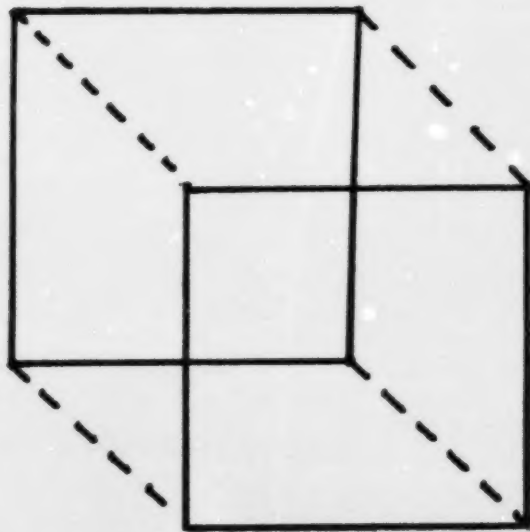
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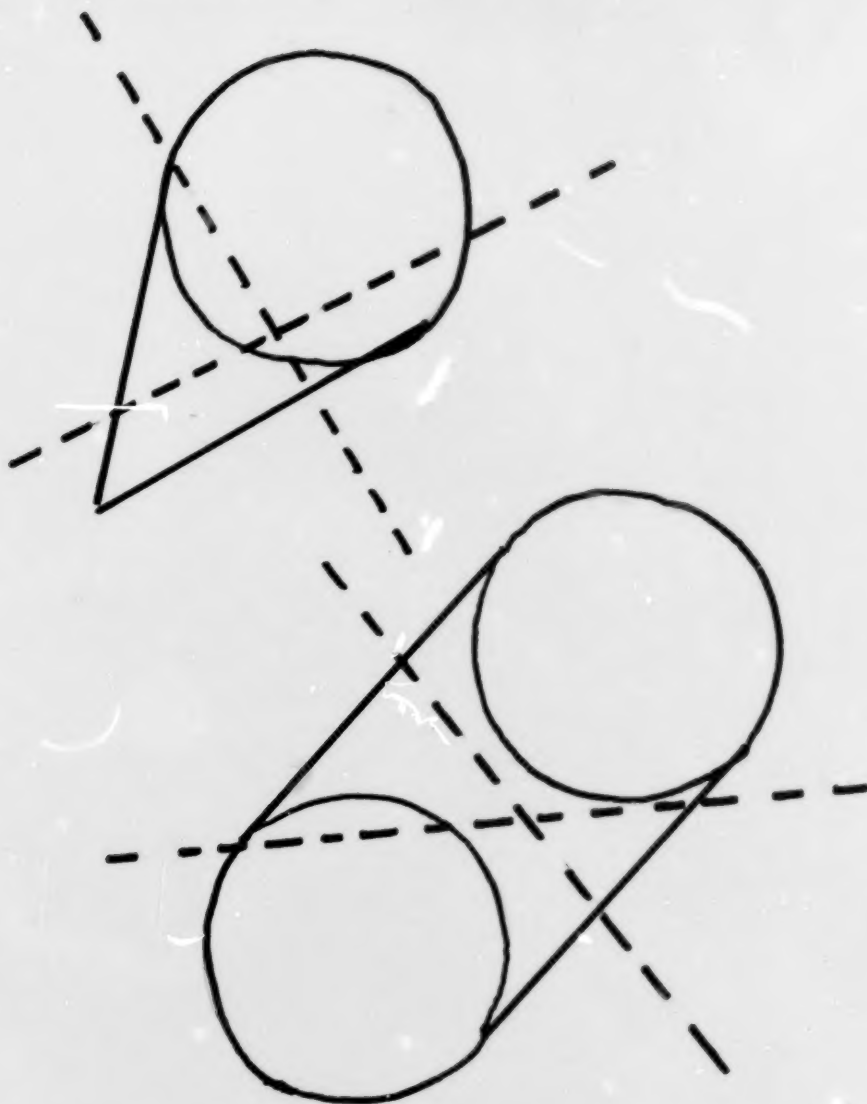
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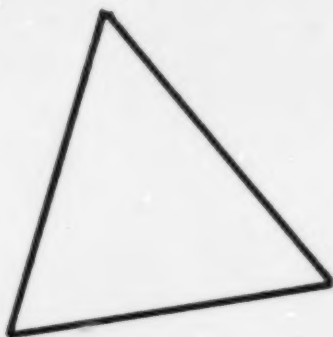
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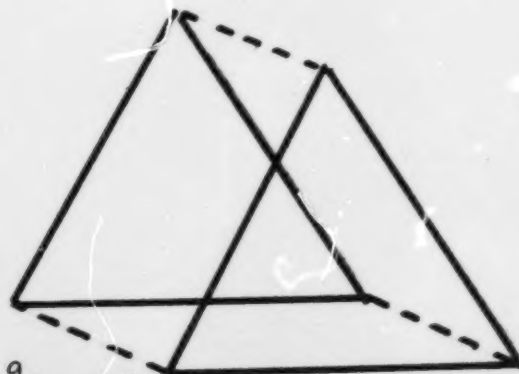
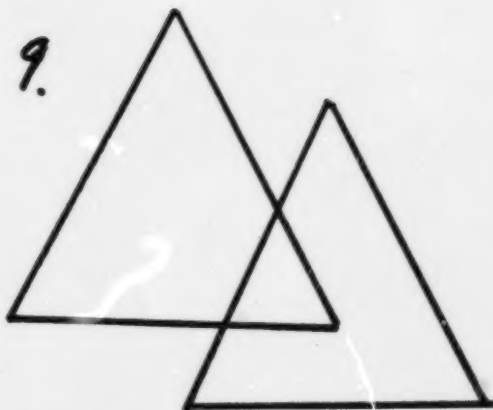
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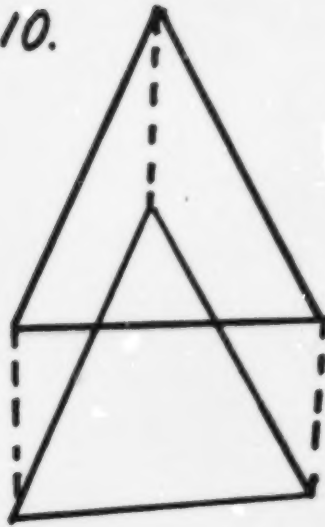


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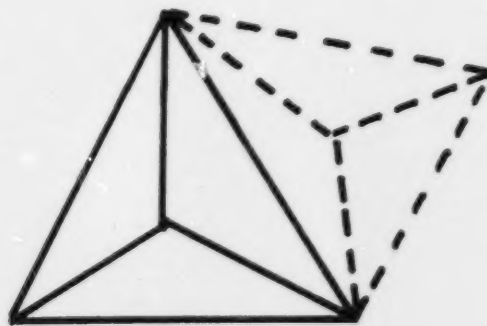
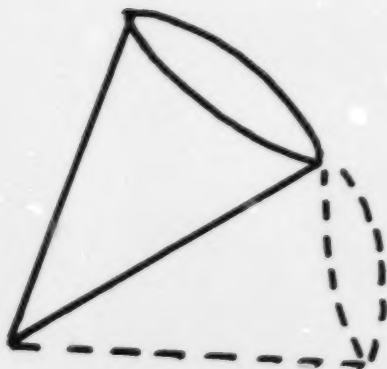
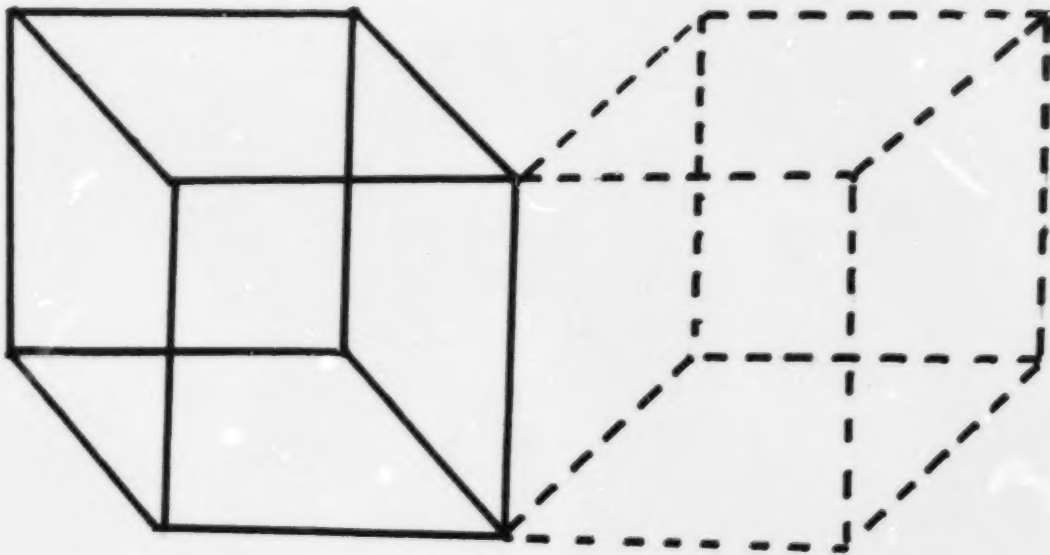


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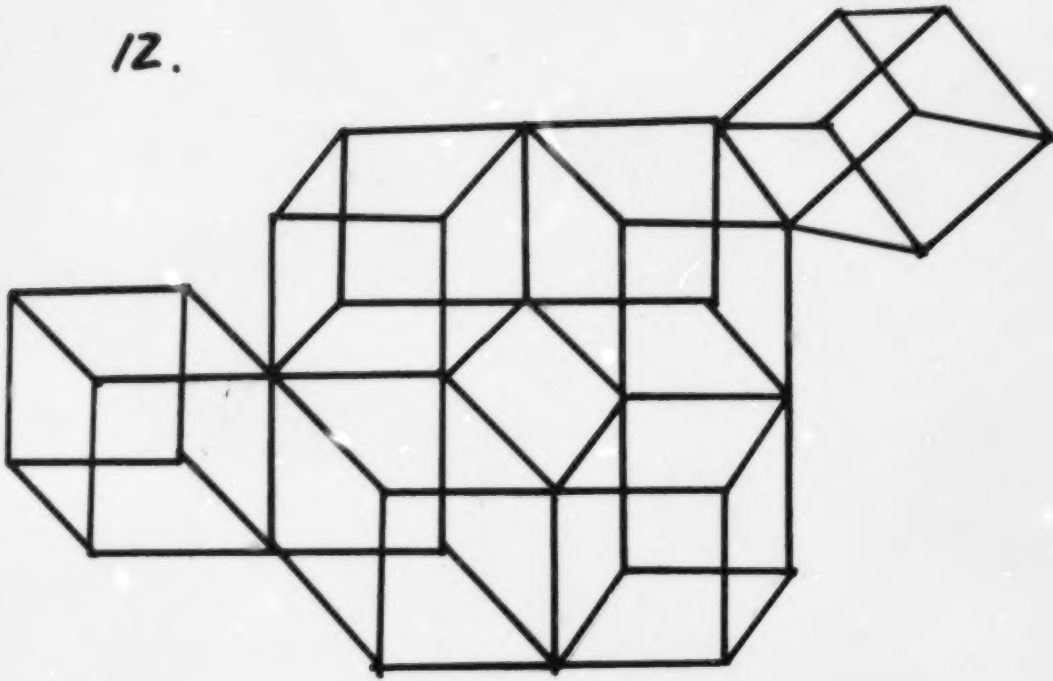
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12.



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